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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,584	02/05/2002	Laszlo Marton	16139/09017	8264

7590

04/22/2003

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Columbia, SC 29201

EXAMINER

HAAS, WENDY C

ART UNIT	PAPER NUMBER
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1661

DATE MAILED: 04/22/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/068,584

Applicant(s)

MARTON ET AL.

Examiner

Wendy C Haas

Art Unit

1661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 24-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 8. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I in Paper No. 7 is acknowledged. The traversal is on the ground(s) that no additional search burden on the examiner exists. This is not found persuasive because Groups III and IV encompass product claims that would be anticipated by the claimed product made by any other method(s) and therefore continue to present an additional search burden. Group II has been merged with Group I, as per applicant's request.

The requirement is still deemed proper and is therefore made FINAL.

This application contains claims 24-31 drawn to an invention nonelected with traverse in Paper No. 4. A complete reply to the final rejection must include cancelation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Drawings

The drawings are objected to because the figure labels don't match the specification. In addition, only one set of drawings was filed. A correction to the specification or corrected drawings is required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Color photographs and color drawings are acceptable only for examination purposes unless a petition filed under 37 CFR 1.84(a)(2) is granted permitting their use as acceptable drawings. In the event that applicant wishes to use the drawings currently on file as acceptable drawings, a petition must be filed for acceptance of the color photographs or color drawings as acceptable drawings. Applicants should note that the petition **MUST** describe why color

Art Unit: 1661

drawings are necessary. Any such petition must be accompanied by the appropriate fee set forth in 37 CFR 1.17(h), three sets of color drawings or color photographs, as appropriate, and an amendment to the first paragraph of the brief description of the drawings section of the specification which states:

The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawing(s) will be provided by the U.S. Patent and Trademark Office upon request and payment of the necessary fee.

Color photographs will be accepted if the conditions for accepting color drawings have been satisfied.

Double Patenting

Statement of authority:

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground

Art Unit: 1661

provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-4, 7-11, 14 and 16-23 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4, 7-11, 14 and 16-23 of copending Application No. 10/068,600. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-4, 7-11, 14 and 16-23 of the instant application fully contain the metes and bounds of claims 1-4, 7-11, 14 and 16-23 of Application No. 10/068,600.

Specifically, the claims in the present application are drawn to methods of making and transforming monocot plants through tissue culture and DNA transformation techniques and the claims in 10/068,600 are drawn to methods of making and transforming *Arundo donax* plants through tissue culture and DNA transformation techniques. *Arundo donax* is a monocot and the methods set forth in the instant application are fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: *Arundo donax* is a monocot species. Applicant's working examples in the instant application are all drawn to *Arundo donax*.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending

Art Unit: 1661

application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Specification

The disclosure is objected to because of the following informalities,

Appropriate correction is required:

Page 3, line 12, the word “hits” appears to be a typographical error.

Page 6, lines 6, 7, 10, 11, 13, 14, 17 and 22, applicants should change the words “Figure” to read: --FIGURE--. As the drawing sheets of record are not so labeled, it is inappropriate to refer to the drawings as Figure in the specification. The specification and drawings must correspond to each other in this regard.

Applicant should proofread the specification with an eye toward correcting errors.

Claim Objections

Claims 18-20 are objected to because of the following informalities: “titopotent” is not a known term of art. It appears applicant may have intended to utilize the term – Totipotent --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6, 12, 13, and 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, claim 6 states “wherein the plant . . . comprises a plant.” A plant either is or is not a plant and may not properly be said to comprise a plant as it is a discrete entity. These claims are further rejected as the genus and species names of the plants set forth are not clearly provided (i.e. there is more than 1 genus beginning with “S” that “S. spartinae” could refer to; applicant claims “Poa sp. 1, Poa sp. 2” without specifying the species, etc.)

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the claim should read – completely enclosing a developing --; the claim is confusing and lacks proper antecedent basis as it is presently written.

Claims 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, claim 12 is dependent on claim 6 and refers to “the secondary medium and the tertiary medium”. The limitations of claim 6 (dependent on claim 1) require only a primary medium. Claim 13 is dependent on claim 12.

Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, claim 15 states “the auxin comprises” and “the cytokinin comprises”, but sets forth three auxins and three cytokinins. Applicant should specify whether the medium

can comprise any of the claimed auxins and/or cytokinins or should, in the alternative, comprises all of the claimed auxins or cytokinins.

Claims 16 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, applicant states the plant hormone comprises a cytokinin; this lacks proper antecedent basis. Perhaps applicant intends to claim the plant hormone is a cytokinin?

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, applicant states the cytokinin comprises thidiazuron; this also lacks proper antecedent basis. Perhaps applicant intends to claim the cytokinin is TDZ?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 6, 10, 11, 14, are rejected under 35 U.S.C. 102(b) as being anticipated by Li et al. (World Congress on Cell and Tissue Culture). Li et al. (World Congress on Cell and Tissue Culture) teach a method for producing callus, shoots, roots and whole plants of *Spartina alterniflora* via tissue culture. Specifically, they teach that *S. alterniflora* callus can be initiated

Art Unit: 1661

from totipotent meristem tissue on a primary medium containing MS salts, auxin and coconut water. The callus can be maintained on a medium of MS salts and auxin, with or without cytokinin (i.e. BAP), sucrose and/or coconut water. Shoots are formed on MS medium with 1.0 mg/l BAP or with 3.0 mg/l BAP and 0.2 mg/l IAA and roots can be formed from calli on MS medium with BAP and NAA.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 1661

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of Li et al. (World Congress on Cell and Tissue Culture) as applied to claims 1, 6, 10, 11 and 14 above, Li et al., or Li et al (Aquatic Botany) in view of Gallagher et al., Meagher et al., Sutter, Hartmann et al., Linder et al. and Anonymous (WAPMS).

The teachings of Li et al. (World Congress on Cell and Tissue Culture) are set forth above.

Li et al. teach a method for producing *Spartina cynosuroides* plants by culturing mesocotyl tissue on a primary medium containing mineral nutrients, an auxin and a cytokinin, vitamins and about 30 g/l sucrose in order to produce totipotent callus tissue.

Li et al (Aquatic Botany). Li et al. teach a method for producing *Spartina patens* plants by culturing mesocotyl tissue on a primary medium containing mineral nutrients, an auxin and a cytokinin, vitamins and about 30 g/l sucrose in order to produce totipotent callus tissue.

Art Unit: 1661

Li et al. (World Congress on Cell and Tissue Culture), Li et al., and Li et al (Aquatic Botany), do not teach cultivation of the totipotent tissue on and secondary medium to *produce a complete plantlet*, cutting the explant of living tissue into cross-sectional segments, cultivation on a tertiary medium free of plant hormones, an inflorescence as an explant, the specific means of solidifying culture medium, or genetic transformation by any method.

Gallagher et al. teach DNA transformation of halophyte monocot species using a particle gun.

Meagher et al. teach that numerous methods for producing a transgenic plant from a *Spartina* plant are known in the art, including *Agrobacterium*, electroporation, particle bombardment and direct DNA transfer. (Col. 14, lines 33-54).

Sutter teaches that plant tissue culture media consist of mineral nutrients, vitamins, plant growth regulators and a carbon source. Sutter notes that sucrose, in a concentration of from 2-4% is the most common carbon source for tissue culture media. Sutter also teaches that tissue culture media are frequently supported by agar, agarose, or gellan gum. Sutter notes that the general rule in plant tissue culture is that an auxin:cytokinin ratio of greater than 1 leads to root formation and an auxin:cytokinin ratio of less than 1 leads to shoot formation.

Hartmann et al teach that segments of immature inflorescences are highly regenerative explant choices in many species. They also note that most tissue culture methods require slicing the explant tissue into small segments. Hartmann et al. note that many herbaceous species of plants root readily in tissue culture conditions and no special rooting step or acclimation need apply to these species.

Art Unit: 1661

Linder et al. teach a method for producing *Arundo donax* plants by culturing immature inflorescences on a primary medium containing mineral nutrients, vitamins, and auxin in order to produce totipotent callus tissue and then placing the callus on MS medium to regenerate whole plants with shoots and roots.

Anonymous (WAPMS) teaches that *Spartina alterniflora* is capable of rapid vegetative propagation of complete plantlets from rhizomes.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to use the methods of Li et al. (World Congress on Cell and Tissue Culture), Li et al., and Li et al (Aquatic Botany) as modified by the teachings of Gallagher et al., Meagher et al., Sutter, Hartmann et al., Linder et al. and Anonymous (WAPMS) to produce and/or transform tissue cultured *Spartina alterniflora* plants. Each reference by Li et al. teaches that *Spartina alterniflora* and *Spartina* species are highly regnerable in tissue culture systems. One would be motivated to use the teaching of Sutter that plant tissue culture media components may be modified within a wide range of parameter with success in many species to choose any convenient medium that meets the basic requirements of the experiment, particularly as Hartmann et al. teach that many plant species root readily to produce complete plantlets in tissue culture with no special rooting step and Anonymous notes that *Spartina alterniflora* is, by nature an easily regenerable species.

One would be motivated to use the teachings of Hartmann et al. and Linder et al. to utilize an immature inflorescence as an explant for ease of rengeration as it is considered a highly renegerable explant source, has proven successful in other wetland species, and can be harvested without significant damage to the parent plant. Finally, One would be motivated to

Art Unit: 1661

genetically transform the cultured plants by any method known in the art, as Gallagher and Meagher teach that nearly any known method chosen would show success.

One would be **motivated** to do this for any one of a number of reasons noted by the cited art, such as the ability to engineer *Spartina alterniflora* plants with desirable characteristics to better control wetland erosion, or remove environmental pollutants from afflicted areas. As such, the invention was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

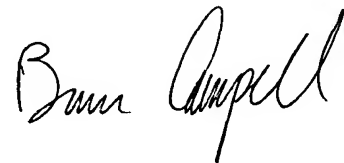
Future Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wendy C. Haas whose telephone number is (703) 308-8898. The examiner can normally be reached on Monday through Friday from 9 a.m. to 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bruce Campbell can be reached on (703) 308-4205. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-3166 for regular communications and (703) 746-3166 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

W. C. Haas

A handwritten signature in black ink, appearing to read "Bruce Campbell", written in a cursive style.

BRUCE R. CAMPBELL, PH.D.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600